J. C. White M.D.
with the respects of
Edward Wigglesworth Jr.

ALOPECIA.

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of Boston.

Read at the Annual Meeting of the Mass. Med. Society,
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ALOPECIA is derived from the Greek word for fox, these animals being subject to a loss of hair from the head. Let us hope that their proverbial reputation for wisdom has some better foundation. Since the time of Absalom, however, the world has lost in hair what it has gained in wisdom, and to-day baldness has become an evil well meriting the attention of the medical profession.

Baldness is the absence of hair from parts normally supplied with it, due to atrophy of the hair, the result of a "morbid interference with its typical growth,"* arising either from a derangement of its nutrition in general, causing deficient hair growth, or from a structural alteration of the individual hairs. Deficient hair growth may be congenital, alopecia adnata; or acquired, alopecia acquisita.

Congenital alopecia may be partial or total, the skin being smooth and unchanged. The teeth are generally developed very late. Danz† mentions the cases of two adult Jews, in whom the teeth, as well as the hair, were absent. As a rule, we observe coincidence of abnormality in the dermal covering and in the teeth. Witness the edentata and cetacea. According to Darwin,‡ a deficiency of teeth was found in three hairless "Egyptian" dogs and in a hairless terrier.

* Kohn (M.). Wiener Med. Presse, No. 44, 1870.

† Störk's Archiv f. d. Geburtshülfe, p. 884, Bd. 4.

‡ Darwin. Animals and Plants under Domestication, vol. ii. p. 326.

So the rare cases where hair has been renewed in old age have usually been accompanied by a renewal of the teeth. Julia Pastrana, the Spanish dancer, had a full beard and her whole body was hairy. She had also in both upper and lower jaws an irregular double set of teeth, one row placed within the other. A family at Ava, in which through three successive generations a universal hair-growth was present, has been observed at three different times by different trustworthy authorities. Crawford,* in 1828, saw the first of these generations, a man covered everywhere with fine hair like an ape. He came to puberty at 20 years of age, at which time he shed his infantile teeth. The set which followed never consisted of more than the incisors and left canine in the lower jaw; and in the upper, four teeth, the two outer ones partaking of the canine form. His youngest girl, aged 2½, was covered with fine silky hair, and had only two incisors in each jaw. Capt. Youle† saw the family in 1855. The girl, now a married woman, was covered with hair, even upon her nose, like a Skye terrier, and had never had either molar or canine teeth. Her child, aged fourteen months, was evidently taking after his mother, and tallied with Crawford's description of the woman herself as a child. In 1867, the family was seen and photographed by Capt. Houghton.‡ Usually, in cases of congenital deficiency, the hair makes its appearance during the first year partially or completely. One such case, however, was noticed in 1827, at La Charité hospital, by Rayer,§ in which the whole body remained bald, except for a few lanugo hairs. The patient, when seen, was 32 years of age. His father had suffered

* Crawford, John. "Journal of an Embassy from the Governor-General of India to the Court of Ava. 1868."

† Youle, Capt. Henry. "Narrative of the Mission sent by the Governor-General of India to the Court of Ava."

‡ Beigel. Human Hair. 1869, p. 67.

§ Rayer. 2d edit. (Eng.), p. 1049.

in the same way, and as other similar cases are reported it is possible that some hereditary cause may exist.

Alopecia acquisita is characterized by excessive falling out of the hairs and by defective reproduction. The relative value placed by different authors upon these different characteristics has given rise to great confusion in nomenclature. I refrain from an enumeration of the unpractical Greek and Latin titles in use from the time of Celsus to the present day, and adopt once more Kohn's division into Alopecia senilis and Alopecia præmatura, as the most descriptive and comprehensive.

Alopecia senilis is more common in men than in women, affects by preference the top of the head, and begins, as a rule, just over the occiput or at the forehead. For a time, we find the openings of the hair follicles patent and more or less lanugo hairs. Alopecia senilis is usually preceded by grayness of the hairs, though the presence of the latter by no means presupposes the subsequent occurrence of the former. It is due to the general decay of the vital forces, and any anatomical alterations of tissue-structure are rather to be regarded as sequences than as causes of the baldness. These alterations are, shrivelling of the elements of the hair follicles, and fatty degeneration of the cells of the hair root-sheaths, more marked in proportion to the duration of the baldness; a condition of things self-evidently wholly inimical to any subsequent reproduction of hairs. This form of baldness is therefore incurable.

There remains for consideration our second division, premature baldness, the one most interesting and of most practical importance to us as physicians, being the one we are continually called upon to treat, and, fortunately, the one also most amenable to treatment. Kohn distinguishes two classes, basing his division upon the causes of the mal-

ady: I. Alopecia præmatura idiopathica, due to disordered nervous influence; and II. Alopecia præmatura symptomatica, the symptom or sequence of a recognizable, organic, morbid condition of the skin, especially of the hair follicles, or also of the hair itself. These two forms vary in their development, course, duration, outward appearance and amenability to treatment.

Idiopathic premature baldness is that form in which the hairs fall out, their reproduction being also inadequately proportionate to their loss, as a consequence solely of nervous disturbance and without demonstrable previous disease of themselves or their appurtenances. This form has been known under various names for more than a hundred years, and it is somewhat remarkable that its present name, Alopecia areata, is also the name under which it was first mentioned, in 1768, by Sauvages. The first real description and delineation of the disease we owe to Willan and Bateman, who, in 1817, described it under the title Porrigo decalvans. For years subsequently, nevertheless, it was confounded by Alibert, Mahon, Gruby, Cazenave, &c., with Herpes [or Tinea] tonsurans, the Porrigo scutulata of Willan, a parasitic disease; simply because both maladies presented more or less the forms of circles deprived of hair. In Alopecia areata, however, the circular patches are completely bald, while the hair in the immediate neighborhood seems as thick as elsewhere; the skin of the bald spot is smooth, shining and white. The spots increase in size, run into one another, and may produce extensive baldness lasting months and even years. In Tinea tonsurans the spots are not bald, but covered with hairs broken off short. The skin shows blisters, pustules or scales, and the duration of the disease is easily influenced by treatment. When the hairs are absent, the bald spot shows plainly the openings of the

hair follicles stretched by spores, whereas in Alopecia areata these are atrophied. With Tinea tonsurans we are apt to find also upon the face and neck, and even body, similar circular patches, varying in extent, and due, by microscopical examination, to the same parasite. Hebra, in his "Atlas of Plates, 1858," lays great stress on the distinction between these two diseases.

At present, the clinical appearances and treatment of Alopecia areata are well understood, while with regard to the etiology, two most dissimilar opinions prevail: some dermatologists attributing it entirely to disordered nervous influence; others, to the presence of a parasite. The latter may possibly be the exception, the former is certainly the rule. Virchow* says, "The afferent artery, which supplies a whole series of papillæ in common, may by means of its nerve be brought into an altered condition, so that a contraction or dilatation, and in correspondence with these states a diminished or increased supply of blood to a considerable district takes place." The nutrition then being affected, we get changes in the functional formative processes of the papillæ of the hairs. Let us examine the comparative merits of these two views.

The list of those believing in the parasite as a cause of the disease is a short one: Gruby, Bazin and Hardy in France; and in Great Britain, Tilbury Fox, Hutchinson, Hillier and Anderson, all of wavering faith. Dr. White, of Boston, also holds that in a few rare cases the cause is parasitical. All others disbelieve in a parasite as a cause. I hold with the latter class until I see more positive proof than has yet been adduced, for, though a small amount of positive outweighs a vast amount of negative evidence, personally I have been singularly unsuccessful in my attempts to obtain

* Cell Pathology, p. 246.

from the above-mentioned "defenders of the faith" any of their "positive evidence." For me, therefore, the parasite is, to say the least, "not proven." Let us see what the alleged arguments in its defence amount to. Gruby,* in 1843, announced the discovery of a microscopical fungus, which he dubbed Microsporon audouini. But this is mere assertion,† and, in fact, the only argument at present adduced by the adherents of the fungous theory is the purely negative one of asserting that all cases where no fungus is found are cases in which the disease is at a period of development where the spores are nil, or so small as to elude observation. But positive proof of fungous existence no one has yet given.‡ Gruby's case was probably a Tinea tonsurans, or an Alopecia areata accompanied by seborrhœa, or an accidental case of complication with some fungus wandering at large in the atmosphere. One case is hardly enough to justify us in adopting his views, particularly when we consider the confusion at that time still existing between Alopecia areata and Tinea tonsurans, the latter of course containing fungi. Add to this the inferiority of the microscopes of that day and the lack of suitable means for such a powerful transmission of light as would enable one to examine the interior of the hairs. Moreover [I quote Bazin himself], "the larger portion of the memoir of M. Gruby is only a romance." It is precisely such pseudo-scientific, romantic, visionary theories of Frenchmen, that patient, laborious, exact German investigation has been for the last twenty years successively and successfully strangling. The material fall of Paris is typical of a new era in more ways than one.

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* Comptes Rendus, 1843, t. xvii. p. 301. Vide, also, Malmsten; Archives de Mueller, 1848, p. 7.

† Centralblatt f. d. Med. Wissenschaften, 1871, No. 9.

‡ Erasmus Wilson, F.R.S. Diseases of the Skin. Ed. vi. p. 722.

Bazin* himself seems to have lost his reason and literally wallowed in spores. Not content with one sort of fungus, the Microsporon audouini, whose results he must needs subdivide into two forms, he added another, the Microsporon decalvans. This latter parasite, existing only by his bounty, he was compelled to thrust forth and renounce in his edition of 1862, and his two forms resulting from the former, he is also at last content to classify under one head, "Teigne pellade," though even of this he must needs make a true and a false. Being reduced to one fungus he demands all the more the liberal distribution of this one, and asserts its existence in the skin and nails, causing local disease of these parts. This theory he took first on trust, and, when at last he met with a case, was compelled to confess its "similarity to the disease of the nails produced by the Trycophyton of Tinea tonsurans." The coexistent "Pellade" of the head loses rather than gains by this discovery. Let me quote a remarkable sentence of M. Bazin.† "Le Microsporon épidermique et le Microsporon unguéal [si tant est qu'il existe] sont faciles à constater." If the latter is so "facile à constater," why does he have any doubt of its existence? Finally, the fact that he speaks of the fungus at all as so very readily to be proved by observation, while the best observers almost to a man are utterly unable to find it, looks as if M. Bazin must be mistaken in regard to the identity of what he finds with a fungus, or that he confounds Alopecia areata with the parasitical disease Tinea tonsurans. I have myself seen him make this last mistake and proved him in error by the aid of the microscope. Moreover, to substantiate his theory, he puts but a single witness on the stand, and that one a most wretched-looking

* Bazin. "Recherches," 1853.

† Bazin. Affections Cutan. Parasitaires, p. 219.

nondescript sort of a hair upon which are formations which he chooses to say are spores, and that too of a peculiar kind. But he gives no history of the case, no explanation even of how it was obtained, prepared, examined, &c., nothing but his bald assertion that this is the fungus. I will add incidentally that nine months diligent attendance at M. Bazin's cliniques convinced others as well as myself of the non-existence of a fungus in this disease.* But enough! "nil de mortuis!" and when Dermatology and M. Bazin were younger than now they were also better friends.

Hardy follows Bazin, asserts as he does, speaks of the fungus as always to be found, &c., but gives no proof. I cannot find a single report by him of actual examination of any one case. Moreover, in his "Parasitic Diseases,"† he says, "is the general malaise to be attributed to the fungus as an absorbent of the nutritive juices, or is the alteration of nutrition the primary evil and the development of the fungus a mere consequence? As yet, these questions have received no satisfactory solution."

Of Tilbury Fox I speak with deference as a man, able, clear-headed, practical and unprejudiced. Still, my conviction is that he is in error. During an attendance of three months at his clinic, he, with characteristic politeness, gave me every opportunity of studying Alopecia areata, but I could never convince myself of the presence of a fungus. The appearances yielded as a rule to the application of potassa and ether, and in his plate of Alopecia areata,‡ the appearances are rather of fat-globules and detritus than of sporules and sporidia. Mycelium, he confesses he has not

* Duhring. "Alopecia Areata," Am. Journal of Med. Sciences, July, 1870; and Anon., Lancet, vol. ii., 1870, No. 31.

† Hardy. "Maladies Parasitaires," p 182.

‡ T. Fox. "Skin Diseases of Parasitic Origin." London, 1863.

met with,* and adds, "It appears then that what would have become Tinea tonsurans, and the like, in the young, forms Tinea decalvans [Alopecia areata] in the adult, in consequence of the difference in the character of the soil in the two cases; and whenever in the child the proper nidus is below par, so to speak, that is, similar to that of the adult, Tinea decalvans results." Now I certainly do not deny that fungus will still be found in Tinea tonsurans, by whatever other name this disease may be called. This question of difference in soils is an important one. If we admit it, we reduce all parasites to one; that one, however, remains the Trycophyton of Tinea tonsurans and T. circinata. T. mentagrophytes is now known to be due to the Trycophyton. Ditto the T. sycosis.† It is the Trycophyton which is found in Eczema marginatum.‡ So in the "Chinese Ringworm" of the genitals, the Mentagrium of Martial§ and the Pudendagrum of Pliny, "where the Trycophyton was carried by 'Libertines,' called Cunnilingi and Basiatores, from the face to the genitals, and received again by others from the genitals upon the face."‖ It is Hebra's theory that all parasites are identical.¶ Dr. John Lowe** reports a case where favus during cure passed into Tinea tonsurans, from contact with which he himself acquired a Tinea circinata. Hutchinson†† reported a case to the Path. Soc., Dec. 17th, 1861, in which he holds that a Tinea versicolor resulted from the implantation of the Trycophyton. Fox mentions

* Ibid. Loc. cit., pp. 57 and 25.
† Gibert. Traité Pratique des Mal. de la Peau, t. i. pp. 278–279.
‡ Pick. Archiv f. Derm. u. Syph. 1869, 1 Heft. p. 61.
§ Epigram, lib. xi. p. 98.
‖ Kuchenmeister.
¶ 2d Plate. New Sydenham Society.
** Lancet, Oct. 29, 1859.
†† Med. Times and Gazette, Jan. 12, 1860.

also many other cases of various effects produced by the same parasite, and *vice versa*. Now if in the one or two least disproved cases of fungus found in Alopecia areata this fungus were a fact, it was probably simply the Trycophyton somewhat modified by the previously existing disease—for I do not deny that the Trycophyton may fall on any part of the body—and cases of its presence here should be, as they most certainly are, the rarest of all, since the field presented for its reception is the smallest, quantitatively, at best, to say nothing of its rarity of existence at all. The disease Alopecia areata remains, however, non-parasitic, whether a subsequent development of fungus takes place or not, and whether that fungus, if developed, be one alone or one of a thousand.

Hutchinson is one of the most able and versatile of our profession. But the very multiplicity of his labors leaves no time for exact research, and he is a specialist neither in the microscope nor in dermatology. However valuable his opinion in general is, the present is a question of fact simply, and only to be decided by the microscope. He gives no proof of a fungus, merely adducing some few cases tending to show that the disease is apparently contagious.* It is a great mistake, an injustice towards others, to accept as truth the mistakes of our superiors, because they are our superiors, and then to disseminate these errors with the additional weight of whatever value our opinions may have. The true majority is not the numerical majority of one leader and an unthinking mass of followers, but lies in what is often quantitatively the minority, viz., the smaller number numerically, but of which number every man is an independent thinker and investigator. For me, therefore, there remain only the cases seen and described; the number of the writers accept-

* Pathol. Soc. Transactions, vol. xiii., p. 266.

ing these views without original investigation is a matter of no importance. And this very subject of Alopecia areata furnishes me with a good example of the authoritative value of mere numbers. Robin* says of this supposed fungus, and, by the way, he never even pretends to have seen more than one case, "Il diffère du Trycophyton tonsurans par des branches nombreuses, courbées, ondulées, &c." Now comes Kuchenmeister† with an exact translation of Robin, without stating, however, that he himself has ever seen a single case. "Die Unterschiede von Trycophyton Tonsurans bestehen in den Zahlreichen, gekrümmten, wellenförmigen Aesten, &c." And, finally, "in the lowest deeps a lower deep," comes Lankester,‡ the translator of the translator, and who never saw a case of the fungus at all, who renders into English the passage I have just quoted, but with the trifling error of exactly transposing the signification. He says: "The distinctive character *of* Trycophyton tonsurans consists in its numerous, curved, undulating branches, &c." It should read, speaking of the Microsporon audouini — its differences *from* the Trycophyton tonsurans consist in its, &c. And thus is Pseudo Science constructed!

Anderson quotes Bazin as a part of the history of the subject, but says he never found any parasite himself, although of the 7342 cases of skin disease at his Glasgow Dispensary, 100 were Alopecia areata. Moreover, throughout his whole article on Alopecia areata,§ he expresses the greatest doubts with regard to the existence of a fungus.

Hillier says:‖ "The sporules of the fungus *are stated to*

* Vegeteaux Parasites, p. 427.
† Die Parasiten, vol. ii. p. 43.
‡ Sydenham Trans., vol. ii. p. 153.
§ Parasitic Affections, p. 138.
‖ Handbook of Skin Diseases, p. 285.

be," "the filaments *are said to be*," &c., "I found a number of cells *looking like* vegetable spores." He gives a plate of these *au naturel*, and describes them as "having all the appearances presented by the fungus of Tinea tonsurans," being too large for the parasite of Gruby. And all this despite the fact that he is the author to whom all others refer for proof of the contagiousness of the disease, he having had in a parochial school at Hanwell, containing 1100 children, forty-three cases of the disease.* Now as these cases were probably, from his own description, Tinea tonsurans, we are not compelled to fall back upon nervous depression, the result of the traditional diet of "Do-the-boys Hall."

There remains only Dr. White's case, as yet unpublished, but mentioned to me in conversation. I am always open to conviction, but this case occurred, unfortunately for me, six years ago, and I had no opportunity to examine it. At best, it would only show the possible, very rare occurrence of a parasite even were this parasite not an altered Trycophyton. I must therefore still adhere to my opinion that the disease is not due to a fungus.

A few words more, and I leave this subject. Were the disease of parasitic origin, we should expect, instead of a small, the very largest amount of fungus present. The unexpected occurrence of the malady, its rapid and often extensive spread, the actual bursting apart of the hair fibres, the oval distentions, and the completely atrophied root, point to an overwhelming amount of fungus, if any at all. And yet, history furnishes us with only three cases in which fungus was found, and even these are doubtful. And yet, Fox speaks of it as "the least expressed form of Tinea." Now, since there is little or no fungus, we should expect less constitutional derangement, if this disease is due to a

* Lancet, Oct. 1st, 1864, p. 374.

parasite, than in other parasitical diseases. And yet it is precisely from the ranks of the fungus worshippers that we draw proof to the contrary. Mr. Hutchinson* reports forty-two cases of Alopecia areata. Eleven of these were adults. Of these adults, Nos. 2, 34 and 36 [I retain Mr. H.'s numbers] were "dyspeptic;" No. 41 "not so well as usual, health fair;" Nos. 26, 27 and 37, "good health;" No. 28 "had a bad scald-head, health fair;" No. 23 "had a ringworm in infancy, and the hair did not grow well afterwards;" No. 4, "fair, not feeling well;" Nos. 8 and 40, "dyspeptic;" No. 1, "a little losing flesh;" No. 3 "looks underfed;" No. 5 "had water on the brain, which left a squint, almost well when the disease began;" No. 7, "losing flesh;"† No. 10, "delicate, pale, clear skinned;" No. 13, "delicate, ill-nourished, starved-looking;" No. 15, "strumous;" No. 17, "rather delicate;" No. 18, "delicate, has lost flesh;" No. 22, "pale and delicate;" No. 32, "cachectic." Now if these conditions were the consequence of parasitic disease, we should naturally expect the presence of a vast amount of fungus, and the same is true were the parasite secondary or concomitant, on account of the suitableness of the soil. For "experiment [Hannover and Stilling] has shown that the more diseased the subject the better the artificial introduction of the parasite is accomplished."‡ To this testify Bouley, Trousseau, Delafond, Davy, Robin, Hillier, Thompson, Hunt, Bazin, Balfour§ and others.

The lustreless appearance and disintegrating cuticle of the hairs in the early stages of Alopecia areata is also symptomatic of depraved nervous power, causing imperfect nutri-

* Med. Times and Gazette, Feb. 13th, 1858, p. 165.
† N. B. Two sisters of Case No. 7 had coincident "ringworm."
‡ Fox, T. Parasitic Diseases, 1863, p. 23.
§ Med. Times and Gazette, Feb. 27th, 1858.

tion. The replacing of the long hairs which have fallen out by "fine, short, downy ones," looks like the result of fading nerve power. Parasites which had strangled the strong, full-grown hairs would hardly grant life to these little ones, but would indulge in a general "slaughter of the innocents" as well. Hardy's "arrest of development"* could hardly proceed from "the least expressed form of Tinea," for as Lionel Beale† says: "The diseases of man and the higher animals, known to depend upon the growth and development of vegetable organisms, are local affections confined to a part of the body not involving the blood." The impossibility of inoculation is also unfavorable to the parasitic theory.‡

Alopecia areata begins in one or more spots at the same or nearly the same time on any part of the head, rarely first on the beard. The first thing a patient notices is often a bunch of hair in his comb pulled out all at once from the follicles. Were this due to the presence of spores, what a vast number must needs be present to thus crowd out the hairs, and how quickly they must have grown! In such cases we surely ought to be able to detect the fungus if it existed. The bald spot now tends to grow by peripheral progression, several often run together, and the whole head even may be thus denuded. Before the periphery is attacked, however, the hairs there appear quite normal, or even unusually luxuriant, presenting thus a marked contrast to the bald spot, which is paler even than the rest of the scalp, from imperfect nutrition. In Tinea tonsurans, the hairs are broken off, not drawn out, and the patch is dark from

* Les Maladies Dartreuses, Paris, 1868, p. 181.

† "Disease Germs," p. 75.

‡ Beiträge zur Kentniss der Haare d. Menschen u. d. Saugethiere; Reissner, Breslau, 1854.

the presence of the stumps. In Alopecia areata, the patch at first seems sometimes slightly raised, the tumefaction resulting probably from the pulling out of so many hairs at once; later, a little sunken and shrunk, as is natural, one of its component parts, the hair-roots, having been abstracted, and their follicles, the openings of which were at first visible, being no longer distended, tending of course to fall together. The disease may, in rare cases, proceed so far as even to divest the entire body of every hair. I have myself seen two such cases, and Wilson mentions three, as well as four cases affecting the head, eyebrows, lids and face. As a rule, in the course of from two months to two years the hair is reproduced, lanugo hairs at first appearing and becoming by degrees stronger and darker. The same place, however, may be several times affected before a complete cure. In rare cases, the reparation stops at the stage of the lanugo hairs. The depravation of nerve force often manifests itself also in depression and loss of spirits.

Now as Alopecia areata is not due to a fungus,* what is it? Rindfleisch† gives two plates of hairs taken from a case occurring on a mountaineer immediately after exposing his perspiring head to the icy wind on reaching the top of a mountain. The first, representing a hair from the periphery of the bald patch, shows a loss of nerve power in the hair preventing it from withstanding the pressure of the root-sheaths by which it is, as it were, cut off, and atrophies at the point of their junction with the hair-root, the newly-formed cells being heaped up below this point and forming a swollen knob. The second plate, a hair after nine days' treatment with tinct. capsici

* Pincus. Deutsche Klinik, Jan. 1869, and Boeck. Virchow's Archiv, xliii. p. 336.

† Archiv f. Dermatologie und Syphilis, 1869, No. 4.

and glycerin, shows the hair preserved by stimulation, pushing onwards again, carrying upwards the fattily degenerated point of atrophy, the part below this smaller than normal, from the pressure of the root-sheaths not as yet wholly resisted, and the bulb much shrunken, its newly-formed cells going to supply the growing hair. Wilson* gives four cases of Alopecia areata following nervous derangement, and adds, "how monstrous it appears to the genuine pathologist to talk of a parasitic fungus in connection with the phenomena now described, or to entertain a mere suspicion of contagion!" and on the next page he speaks of the "heredity" of Alopecia areata as "a sufficient answer to the follies of the fungus theory, the crowning absurdity of a mikrosporon audouini," and cites a case of two young ladies, sisters,† whose uncle also suffers occasionally in a similar manner, while his father before him was afflicted with the same annoyance. Such recurrences of the disease, as well as the relapses during treatment, certainly point to depraved nerve force rather than to spores.

The treatment of Alopecia areata is necessarily confined to nervous and nutritive tonics in general. To these we may add various local stimulants to amuse the patient until the disease chooses to disappear. These are the ethereal oils or stimulating alkaloids dissolved in alcohol. Tincture of aconite, of cantharides or of capsicum, from ten grains to half a drachm, may be used in an ounce of alcohol plus a small amount of some ethereal oil. Or we may employ carbolic acid one drachm, alcohol six ounces, glycerin one ounce, well mixed. Whichever is used, it should be applied twice daily to the bald spots and their immediate neighborhood by means of a stiff, small brush, and the applica-

* Journal of Cutaneous Medicine, vol. iii., No. 9, p. 100.
† Now under treatment, April, 1869.

tion be discontinued for a time or used more rarely and less violently, if too great reaction is occasioned. The length of time necessary for a cure requires for the patient's and variety's sake, some change from time to time in the drug employed, but do not attribute the cure, when it occurs, to the drug which happened to be the last one used. The loose hairs around the bald patch must be daily removed with hair forceps, after washing the head, before applying the remedies. There is one more idiopathic form of baldness, viz., that occurring in the region supplied by the peripheral branches of a nerve which has been cut or wounded or become in any way diseased, and this form, by analogy, strengthens our conviction in regard to the origin of Alopecia areata. We come now to Alopecia præmatura symptomatica, arising from seborrhœa capillitii resulting generally from chlorosis and anæmia.

For a full account of this final subdivision of our subject, I must refer you to the original article of Dr. Kohn.* Under this head he places baldness symptomatic of disease of the cutaneous tissues or organs, especially of the hair follicles and sebaceous glands, and dependent upon these for its form, extent, duration, intensity, curability, &c. The hairs fall because, by purulent infiltration of the root-sheaths and of the cells of the root, the root-sheaths become separated from the hair and the hair from its papilla. Until the follicles have been destroyed or cicatrized this baldness is curable. Single hairs or groups fall in this way in cases of pustular, lichenous and parasitic diseases. A more extended loss results from diffused inflammatory processes, such as eczema, erysipelas, &c. Such loss requires the protracted existence of the inflammatory condition, inasmuch as the hairs fall in

* Handbuch d. Pathologie u. Therapie, vol. iii., part 2d, p. 156.

the same way that the whole epidermal layer may be thrown off after a chronic serous exudation. When the inflammation is superficial and transient, the patient may experience no loss of hair. Baldness thus occurring is usually only transient. So also the baldness consequent upon fevers, puerperal processes, great loss of blood, &c., the hair returning with the returning strength. Such loss of hair may be due directly to the modified general nutrition, i. e., dependent upon a trophoneurosis, for, in the experiments upon animals of Boussingault* and Magendie,† insufficient or unsuitable nutrition was followed in many cases by loss of hair. But since in such convalescences, in anæmia, chlorosis, &c., the loss of hair is preceded by seborrhœa, and since this is the most common cause of baldness, it seems fair to attribute the baldness here also to seborrhœa as its immediate cause, though this seborrhœa must needs be referred again to the general disturbance in the nutrition. So the baldness in cases of cancer, tuberculosis, &c., is due to a seborrhœa of the scalp, which is represented on the rest of the body by the so-called Pityriasis tabescentium [Hebra].

To premature baldness as the result of seborrhœa, Kohn applies the title of Alopecia furfuracea. At first, the seborrhœa alone is present, the well-known dandruff, easily removed by soap and water, but returning in a few hours; varying in extent and intensity; producing slight itching; lasting months or years; and by preference selecting the top of the head, possibly because this, being farthest removed from the face, is not reached by the daily ablutions. Dandruff is generally present as a symptom of chlorosis in men or women. The diminished vitality expresses itself also "in cold hands and feet, cold perspiration on the palms and

* Chimie Agricole, Paris, 1854, p. 271.

† Physiologie, Paris, 4th edit., tom. ii. p. 505.

soles, a bluish-red and cold end of the nose, a pale and dry skin and a tendency to chilblains and chronic dyspepsia. In women, deranged menstruation, sterility, pregnancy and puerperal conditions predispose to chlorosis and consequently to dandruff." It generally appears, therefore, at from twenty to thirty years of age, and, though it may last for years, it rarely makes its original appearance after the age of forty. Dandruff is so light an evil that the help of a physician is rarely resorted to until the falling out of the hair and approaching baldness arouse the fears of the patient. The first thing noticed is the great number of hairs lost in combing, and even during the day without combing, until, in from two to six years, the hair has become very thin and often in some places bald. This occurs especially along the part of the hair, on the crown, where the greatest amount of traction is exerted in combing and brushing. The hair on the forehead is not, as the rule, so soon lost, although the baldness may begin here at the same time as upon the crown. This latter is especially common in men, and due perhaps to the pressure and heat of the hat, an ornament which "independent Americans" are rather too fond of retaining upon their heads in season and out of season. Hatters tell me that, according as the head is long or wide, baldness commences at the forehead or on the crown. The perspiration, also, caused by an ill-ventilated hat, is particularly bad for the hair. In very young children we see the hair rubbed off by the pillow; in adults, long-continued pressure may even destroy the follicles. So, according to Virchow, "frequent stimulation, as, for instance, with alcohol, tends to wear out the power of organs by changes in their molecules." The place of the lost hairs is supplied for years by small lanugo hairs, which finally also disappear. The chief cause of premature baldness, then, in both men and women is sebor-

rhœa, or, in plain English, dirt, a lack of cleanliness and proper care of the hair; the superstition being widely spread that washing, especially with soap, is injurious to the hair and skin. A more frequent and thorough use of the matutinal bath would conduce to more health and less baldness among our free and enlightened citizens.

The explanation of the pathological process resulting in baldness is simple. Seborrhœa is the result of an excessive proliferation of cells from the sebaceous follicles which have undergone "fatty impregnation, anorganic chemical change." The cells of the external sheath of the hair-root corresponding to the rete mucosum, form, by an extension in continuo, the lining also of the sebaceous glands. When now the cells of the sebaceous follicles become diseased and are thrown off in excess, the same process is continued in the extension of these cells, viz., the external sheath of the hair-root, and the hair thus separated and pushed out falls as a matter of course, the change in nutrition producing naturally a mechanical separation. The gradual progression of the process and its nature are evident from an examination of the hairs which fall daily. Hairs consist of two classes: long hairs, living from two to four years before they fall naturally; and short hairs, existing four to nine months. "Normally, the proportionate loss of short hairs to that of long ones is from one in eighteen to one in fourteen. As the disease progresses, the proportion rises to one in eight, or in the later stages to one in two," and at first the absolute loss of hair is little if at all increased, merely the relatively proportionate loss of short to long hairs. This would simply tend to show that the hairs were extruded before their time. As the disease increases, however, the absolute loss of hairs is increased, while their size constantly diminishes from progressive debility of reproductive power till we find only lanugo hairs and

finally not even these. This complete loss of hair requires from six to ten years, and the baldness is now incurable, the papillæ and their vessels being so atrophied as to be incapable of producing new cells for young hair-bulbs or roots."* Should we, however, by treatment, put an end to this hyperplasia of cells before the atrophy of the papillæ is complete, the process is arrested and new hairs may be again formed, which, with the restoration of the papillæ, will approximate more and more to their normal condition.

Baldness following variola may be due to destruction by suppuration of the walls of the sacs and of the sheaths of the roots, and in these cases is incurable. But it may also be due to a seborrhœa, when the hairs have escaped destruction, the variolous process not having penetrated so deeply into the corium. Here, after the expiration of the variolous process, there may occur a disease of the sebaceous follicles described by Hebra as seborrhœa congestiva, a condition which may go on to the development in places of a Lupus erethematosus. Clinical observation and microscopical investigation show here a cellular infiltration of the papillæ surrounding the sebaceous and hair follicles, a sort of chronic inflammation. This seborrhœa in time changes its appearance to that of a Seborrhœa sicca, or, as Kohn calls it, furfuracea, with subsequent baldness just as if from an idiopathic seborrhœa not due to variola.

Baldness resulting from syphilis has long been recognized, being mentioned by no less than ten writers in the Aphodisiacus.† Fracastor also speaks of the "ridiculous" appearance made by such sufferers, and goes on to show that treatment by mercury has nothing to do with the origin of the disease. This baldness, when the result of the destruc-

* Bisiadecki. Stricker's Handbuch d. Lehre v. d. Geweben, iii. Lief. p. 602.
† Edit. repurgata, MDCCCXXVIII., tom. prim. p. 714, C. et seq.

tion of the hair follicles by ulceration with subsequent cicatrization, is incurable, as in the same sort of cases in variola. This baldness is necessarily local, being confined to the spots of ulceration. But syphilitic baldness proper, diffused and uniform, is due to seborrhœa, the same as any non-specific baldness, resulting from any other depravation of vitality, whether this be due to disease, to abuse of stimulants or narcotics, to excess of venery, to onanism, or to any other cause whatsoever.* The seborrhœa may accompany the earlier constitutional symptoms, or occur at any subsequent period, even, in fact, after all other symptoms have disappeared. It begins as S. oleosa, and only after some time assumes the character of S. sicca, but may then, as such, last for months or years, like a non-syphilitic seborrhœa, producing the same effects and in the same localities. In seborrhœa from syphilis, the crusts are yellow, and from their under surfaces little processes dip down into the sebaceous glands. The baldness, however, is more rapid in its course, just as the development of the seborrhœa is here more acute and intense. I trust there is no need of saying here that, since the alopecia occurs after any sort of treatment or none at all, the use of mercury has nothing to do with producing it. And in general, beyond temporary salivation and trembling of the limbs, the terrible constitutional effects of mercury may be regarded as Bogy stories to frighten children. The cure of the baldness lies in the cure of the seborrhœa, and even after four to six years of Alopecia furfuràcea, complete or partial restoration of the hair is often possible; in fact, wherever the follicles are not destroyed or cicatrized, and where the cause was a disease of short duration and comparatively slight intensity.

* For nerve lesions in syphilis, compare Fournier, Lagneau fils, Ladreit de Lacharriére, Gros, Zambaco, et al.

The treatment of seborrhœa should be both local and general, and everything depends upon the manner in which the remedies are employed. There is no class of diseases, says Hebra, wherein, to such an extent as in skin diseases, the success or failure of the physician is solely due to the manner of employment of the remedies. With the same patient and the same remedies one physician will be nearly always successful, another will nearly always fail. Some minuteness of description in regard to the proper method of employing the remedies for Alopecia furfuracea is therefore, I trust, excusable. The crusts are to be softened with olive oil rubbed on every two or three hours with a small sponge or piece of flannel; at night, in addition, the oil should be poured on the head, if the crusts are thick, and the whole covered with a flannel night-cap. In twenty-four hours, the crusts will be softened. They should then be washed away thoroughly with soft soap and a flannel rag. Better still is Hebra's alkaline alcoholic soap, composed of two parts of German potash soap [sapo viridis], and one part alcohol, filtered after standing for twenty-four hours. A little spirits of lavender may be added to suit the taste. This is to be poured on flannel or on a bathing mitten, and the head thoroughly washed, the cloth being dipped from time to time in luke-warm water so as to produce a foam, the soap otherwise hardening as the alcohol evaporates. After the scales and crusts are entirely removed, cold or luke-warm water should be allowed to run over the head until every trace of the soap is removed. For this purpose a cold douche is best. This whole washing is best performed in a hot or steam-bath. The oil applications should be daily repeated as long as crusts tend to form. The washing and the cold douche should be continued for weeks afterwards, preferably at bed-time. After washing, the hair should be well combed

and all scales removed, never combing so as to touch the skin of the scalp. The hair, especially of women, may then be dried with a soft towel and left free all night. During the first few days the fall of hair will be greater than usual, but these hairs were already dead and ready to fall, and if not washed out would have fallen of themselves in a few days. If preferred, brandy or alcohol may be substituted subsequently for the alcoholic soap; the last is, however, preferable, and is often of itself alone sufficient to cure the disease. But the epidermis loses its fat from the application of the soap or alcohol, and may scale off as a pityriasis. This is easily obviated by rubbing in some pomade after the hair has become thoroughly dry.

All that remains to be done, after the cure of the disease, is to gently stimulate the growth of the hair. This is never to be done by cutting. No disease of the hair or skin requires for its treatment the cutting of the hair, a barbarous custom, which does not increase the number of individual hairs, which mutilates the patient for the time-being, and which prevents the naturally long hair of young ladies from ever attaining again its usual length. True, the hair is stimulated to an unnatural precocity of growth as regards length; that is, the cut hair plus all the clippings exceeds, at the time of death of the hair, what would have been its natural length; but at the same time the life of the hair is not prolonged, wherefore at the time of its natural death and fall it is still shorter than it would have been had it never been cut; in other words, the excess of growth is not sufficient to supply the actual loss in length produced by the clipping. The stimulation of the hair is best effected by moderate irritants, astringents and tonics, such as veratria, cantharides (tincture), tannin, quinine, &c., never employed to such an extent as to produce inflammation or eczema.

To these may be added alcohol or ether, which stimulate and at the same time, by the chill produced by their evaporation, act as astringents. To avoid two separate applications, it is best to add these drugs to the pomade, to the use of, and necessity for which, we have just alluded. Avoid oil of savine, which turns the hair a reddish brown ; and bicarbonate of soda, which renders the hairs brittle.

So much for the baldness caused by seborrhœa and cured by its removal. But for a permanent cure we must look to the cause of the cause, to wit, the chlorosis and anæmia, no matter from what cause proceeding, which give rise to the seborrhœa as their consequence. The treatment of these needs, of course, no description. Attention to bathing, fresh air, and exercise ; regular hours [and these early ones] ; suitable diet, such as meat and eggs, which tend to form horn ; and sulphur or manganese, according as the hair is blond or dark ; and proper clothing, as flannel next the skin, &c. ; tonics, as iron in a form adapted to the idiosyncrasies of the patient ; and sometimes, though rarely, that much-abused remedy arsenic, which, as a rule, is adapted to but very few cases of skin-disease, will often prove sufficient to overcome the evil. Dyspepsia or chronic gastritis* is often present, and these must be regarded. The iron should be given for from four to six months at least, and a visit to the sea-shore in summer, with sea-bathing indulged in if possible. For baldness following the variolous process, local treatment will generally be found sufficient. For the baldness of syphilis, in addition to the usual local applications, it is well to employ an ointment consisting of a drachm of white precipitate to an ounce of fat. Otherwise, no general treatment for syphilis unless other appearances of syphilis

* Sodæ bicarb., Magnes. carb., Sacchari alb., aa p. æq. ½ dr. ter die for weeks.

are present. Where the loss of hair is dependent upon a local inflammatory process, e. g., from ulceration, eczema, or parasites, &c., our treatment should be wholly directed against these conditions. Microscopical examination of the hairs lost daily gives us a good standard for therapeutical agencies.*

The nerve system affected is the sympathetic. It occurred to me that the motor and sensitive systems might be implicated, as baldness prefers the crown over the aponeurosis, where anatomically we should expect less nervous distribution. But experiments showed that the sensitiveness of the crown does not greatly vary from that of the parietal regions lying over muscles; and the motor nerves of the two regions responded in equal degrees through the Arrectores pilorum to the stimulus of electricity in the case of a boy placed upon an insulated stool and electrized by means of a battery. The loyalty of alopecia to the crown must, then, be referred to some other cause than special deficiency of local nerve force.

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* Pfaff. Das menschlicke Haar, Leipzig, 1869, p. 57, and Pincus. Deutsche Klinik, 1871, I, Lfg.; also Central-blatt f. d. Med. Wissenschaften, April 1st, 1871.